

SUMMARY SHEET
Airworthiness Directive Implementation Aviation Rulemaking Committee
Service Information Working Group

Primary Report and Recommendation	Compliance Review Team (Task 1) Recommendation No. 2 : (T1, R2, B1) Compliance Review Team (Task 2), Recommendation No. 1 : (T2, R1, B1) Critical Task Differentiation
Secondary Report and Recommendation	None.
Assigned Members	Maureen Moreland (ANM) (<i>POC</i>) Chip Amidon (Boeing) Craig Fabian (ARSA) Ken Hurley (Bombardier) Bob McCabe (AIR) Ron Pekny (American Airlines) Jim Phoenix (AFS)
Links to Other Working Groups	AD Development, AD Implementation

WORKING GROUP REVIEW OF ISSUE/PROBLEM

The recommendations addressed in this Summary Sheet consist of two components. They are

- 1) Service instructions should explain the safety intent of the instructions, and
- 2) Service instructions should differentiate the critical tasks and task sequences requiring exact conformance from flexible advisory instructions for tasks that are common acceptable air carrier procedures.

Service bulletins provide instructions for changing type design. The type design is developed by a Design Approval Holder (DAH) and is defined in 14 CFR 21.31 as drawings and specifications necessary to define a configuration and design features. As defined in 14 CFR 21.99, when it has been determined that an unsafe condition exists, the DAH must submit appropriate design changes to the FAA for approval and provide information on the design changes to affected operators. In addition, if it is determined a change in type design will contribute to the safety of an airplane, the DAH may submit design change to the FAA for approval and make the design change available to affected operators.

Service Bulletins (SB) that are incorporated by reference in an Airworthiness Directive (AD) often contain all of the steps to accomplish the necessary inspections, repairs and/or modifications. Although these SBs may include full detailed instructions necessary to complete the work package including access and close-up, not all of these steps may be directly related to correcting the unsafe condition that prompted the AD. In some cases, tasks that are included in the SB can be accomplished using acceptable air carrier procedures. In other cases, tasks must be accomplished in accordance with the procedures specified in the SB to ensure that the unsafe

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condition is appropriately addressed. The failure to make the distinction can cause confusion among and between air carriers, design approval holders (DAH), repair stations, and regulatory authorities when judging whether approval of an alternative method of compliance (AMOC) is necessary in order to deviate from the SB and the AD.

One example of the need for a distinction between “required” steps and those that could be accomplished using acceptable air carrier procedures is when several maintenance or alteration actions are being accomplished at once and the access and close-up steps for those actions may be combined. This can make it difficult to define which action is “required” as part of an AD, and can cause problems when the operator is tasked with showing compliance records for accomplishment of the AD. Air carriers or maintenance providers need to be able to accomplish SB steps that are not a part of correcting the unsafe condition under section 43.13. In these cases, the delay and workload of getting approval of an AMOC may not add safety to the process. The requirement to complete all steps of the SB strictly in accordance with the SB when all of the instructions are not related to correcting the unsafe condition creates unnecessary questions of AD compliance.

Air carriers and maintenance providers often have their own acceptable procedures that can be used to accomplish some of the SB actions. Some confusion and unnecessary AMOCs may be avoided by ensuring that AD mandated SBs specify which procedures must be followed exactly and which can be accomplished using an air carrier’s equivalent procedures. In 2006, one DAH signed an agreement with the Seattle Aircraft Certification Office (SACO) and the Los Angeles Aircraft Certification Office (LAACO) to implement “AD Friendly SBs”. This agreement contained numerous principles and practices that were developed by a DAH/FAA team. Some of the agreements implemented were:

- The phrase “in accordance with” will be used to identify procedures that must be followed
- The phrase “refer to...as an accepted procedure” will be used to identify procedures that can be used, but for which an air carrier or maintenance provider may use their own accepted methods, techniques, and practices.
- A general note describing use of “in accordance with” and “refer to” will be included at the beginning of the service bulletin accomplishment instructions.

Implementation of this AD Friendly SB improvement initiative has helped by allowing air carriers to use their own accepted procedures, without having to get an AMOC, in cases where DAH procedures are not required to address the unsafe condition. There has been some concern that there is not adequate guidance for the DAH and the FAA to determine whether procedures should be identified by the phrase “in accordance with” or by the phrase “refer to...as an accepted procedure”. There has also been concern that in some cases, FAA Flight Standards Inspectors tasked with ensuring that air carriers are in full compliance with ADs may not be aware of the allowable differences in the accomplishment of ADs for procedures identified with these two phrases.

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REGULATIONS AND GUIDANCE IDENTIFIED FOR REVIEW

Air Transport Association (ATA) iSpec2200 “*Information Standards for Aviation Maintenance*”

S1000D – International Specification for Technical Publications

FAA Order 8900.1 (FAA Inspector’s Handbook)

14 CFR 21.31 – Type design

14 CFR 21.99 – Required design changes

14 CFR 43.13 – Performance rules (general)

WORKING GROUP PROPOSAL TO ADDRESS THE RECOMMENDATION(S)/FINDING(S)

The Service Information Working Group (SIWG) proposes to meet the recommendations by implementing changes to how DAH SBs are written. This proposal will help the FAA to avoid mandating steps (such as preparation, access, and restoration) contained in a SB incorporated by reference in an AD that are not needed to meet the safety intent of the associated AD. The proposal also includes sharing of SB changes that have already been accomplished through AD Friendly SB initiatives that were previously developed by one DAH and the FAA. Guidance to DAH and FAA authors, engineers and inspectors, proposed to be in the form of an Advisory Circular, and a proposed revision to Order 8900.1 have been developed.

To address the first component of the recommendation, DAHs intend to include a clear and concise description of the safety intent of the service bulletin, as well as a description of the configuration or measures that remove the unsafe condition. The “Safety Intent” paragraph and the “Configuration Description” paragraph will enhance and focus awareness of the safety issue during the development and approval of the instructions, and during implementation and subsequent maintenance.

The “Safety Intent” paragraph should describe what accomplishment of the service instructions is intended to prevent, detect and correct, or otherwise remove. More so than in past practices, the paragraph should contain a succinct and precise statement of the specific technical objective of the instructions. The goal is to preclude the operator from having to interpret precise intent so that it may, for example, discern if the intent cannot be met, or has not been met.

If accomplishment of the service instructions will change the configuration of equipment, a “Configuration Description” paragraph should be included to provide a succinct description of the configuration that will result from accomplishing the instructions. The statement should be limited to features of the configuration that will prevent development or recurrence of the safety issue once the configuration has been implemented. The paragraph may be of greatest value in

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service instructions that specify ‘high risk’ modifications (e.g., instructions that are complex, workmanship intensive, or susceptible to reversal in operations). The “Configuration Description” statement should assist in understanding the post-installation mandated configuration, but should not be used as final determinant of compliance with an AD.

Since service bulletins that are incorporated by reference are posted on the Federal Docket Management System (FDMS), the safety intent and configuration description statements in service bulletins are readily available to users. The FAA should include language from these statements in the AD preamble, as appropriate. For example, language from the safety intent statement may be used as needed in the AD preamble where the unsafe condition is explained. The configuration description statement, if included, may be used as a source of information for developing the description of the service bulletin in the AD preamble.

To address the second component, the proposal is to classify some steps in service bulletins as “Required for Compliance (RC)”. Steps notated with RC are those steps that are required to address the unsafe condition and therefore required to comply with the associated AD. Generally, preparation, access and close-up steps will not be notated as RC. When a service bulletin is incorporated by reference in an Airworthiness Directive (AD), the FAA will direct that the tasks identified as RC will be mandated. The DAH SB authors and Designated Engineering Representatives (DERs) or Authorized Representatives (ARs) will use the guidance to assist in the decision of which steps should be proposed to the FAA as RC. The RC notation will be reviewed during the SB development as a part of the Lead Airline process. The FAA ACO will review the RC notation as a part of the SB review and approval process.

The RC notation will only be necessary for SBs that are planned to be incorporated by reference in an AD. RC tasks will not be identified in SBs that are not related to a potential AD. If a SB is published by a DAH without RC codes because it was not identified as being a possible AD mandated SB and the decision is later made to AD mandate the SB, the SB can be revised to include the RC codes, or, the AD can be written without required for compliance steps defined in the SB. If task differentiation is necessary and the DAH revised the SB to include RC notation, the revision can be approved as an Alternative Method of Compliance (AMOC) to the AD. Previously issued SBs that have been AD mandated will not be revised to include the RC notation, except by agreement between DAH and air carriers to obtain a global AMOC.

To implement the proposal, a note will be included in the SB to describe the RC notation. The proposed note is:

Note: Some steps in the Accomplishment Instructions are identified as Required for Compliance (RC). If this service bulletin is mandated by an Airworthiness Directive (AD), the steps identified as RC must be done to comply with the AD. Steps not identified with RC are recommended but may be deviated from, done as a part of other actions, or done with accepted methods different from those given in the service bulletin, if the RC steps can be done and the airplane can be put back in a serviceable condition.

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The sharing and expansion of previously developed AD Friendly SB initiatives includes DAH use of the terms “in accordance with” and “refer to...as an accepted procedure” in their SBs whenever possible to define when other methods, techniques and practices can be used. The SIWG developed guidance on the use of the terms in SBs. The SIWG proposes that other DAHs consider the use of a note that is currently being used by one DAH in SBs to define these terms. The note reads:

Note: The SB accomplishment instructions refer to methods, techniques, and practices described in other Design Approval Holder (DAH) documents. When the words “refer to” are used and the operator has other acceptable methods, techniques, and practices (including tools, equipment, and test equipment), those accepted methods, techniques, practices (including tools, equipment, and test equipment) can be used to complete the work. When the words “in accordance with” are included in the instruction, the methods, techniques, and practices specified (including tools, equipment, and test equipment) in the DAH document must be used.

Each DAH will be responsible for incorporating these standards into their internal processes for creating service bulletins. FAA engineering designees and FAA ACO engineers are responsible for reviewing use of the terms when reviewing and recommending approval of or approving SBs.

In order to provide visibility and communication to air carriers, maintenance providers, and the FAA on these concepts, the following two notes should be added to ADs that mandate SBs using RC and the AD Friendly terms “refer to” and “in accordance with”. These notes will give further visibility and communication for the terms as defined within the SBs. These notes would be included in the body of ADs for a limited period of time. Once air carriers and repair stations have had a reasonable amount of exposure to the new concept, these notes would no longer be included ADs.

Proposed language for the AD note:

Note 1: Some steps in XX Service Bulletin xxx, rev xx, dated xx are identified as Required for Compliance (RC). The steps identified as RC must be done to comply with this AD. Steps not identified with RC are recommended but not required to comply with the AD. They may be deviated from, done as a part of other actions, or done with accepted methods different from those given in SB xx, or not done at all if the RC steps can be done and the airplane can be put back in a serviceable condition.

Note 2: The SB accomplishment instructions refer to procedures included in other Design Approval Holder (DAH) documents. When the words “refer to” are used and the operator has an accepted alternative procedure, the accepted alternative procedure can be used to comply with the AD. When the words “in accordance with” are included in the instruction, the procedure in the DAH document must be used to comply with the AD.

The SIWG has prepared guidance material to describe use of the Notes and the RC concept. The guidance material created is included in Appendix 3. The SIWG has submitted the proposed guidance material to AFS-300 and AIR-140. Those FAA organizations will coordinate with the

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SIWG to determine which type of documentation the guidance material should reside to ensure it is available to all affected stakeholders.

The SIWG has also developed a proposed revision to Order 8900.1. This proposed Order 8900.1 revision will clarify to the FAA Flight Standards Inspectors the RC concept as well as AD Friendly (ADF) terminology, so that they can effectively determine which SB tasks are required and which are intended to have flexibility. As stated above, the proposed revision to Order 8900.1 has been submitted to AFS-300 for consideration. AFS-300 will determine if the guidance material should be added to Order 8900.1.

ALTERNATIVES CONSIDERED

The SIWG conducted brainstorming exercises to identify possible options for implementing the recommendations. Some of the options considered were:

- Divide the SB Accomplishment Instructions into parts within accomplishment instructions and have the AD only call out the critical parts.
- Include a note or paragraph at the beginning of the Accomplishment Instructions listing critical steps/figures. Include a paragraph stating “AD Tasks” or “tasks Required for Compliance”. List tasks as required or optional.
- Exclude items that FAA will not include in the AD cost estimate.
- Exclude items that should not warrant an AMOC application or the resources of a DER/AR or ACO for review as needed for compliance.
- For structure related fixes, include the repair in a separate document.
- Include the critical and enforceable requirements in the AD itself. Call out parts of the SB in the AD.
- Include a note in the SB that states that access/close-out sections are not required for compliance and not deemed necessary to meet the safety intent of the SB. Suggested note wording:
"The access and close-out instructions, not comprising return to service tests, in this service bulletin do not constitute or affect the technical intent of the service bulletin. Therefore, air carriers can, as deemed necessary, omit or add access and/or close-out steps to add flexibility to their maintenance operations as long as the technical intent of the service bulletin is met and within the set parameters of the service bulletin."
- Notate something in the margin to differentiate between tasks that must be accomplished.

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- Have two SBs, one listing mandatory tasks and one listing optional tasks.
- Use bold or italics or underlining to distinguish between mandatory and not mandatory actions in the SB.
- Conduct further training of FAA specialists and inspectors in what is critical to airplane airworthiness and what is not.
- Use outline format with list level structure for the SB accomplishment instructions.
- Separate non-approvable data like access and restoration from the specific instructions in the SB.
- Use of RC within figures that are called out in the SB Accomplishment Instructions

Several of the options were not pursued because when the SIWG tried to prototype them in a sample SB, they were found to be impractical to implement or posed other problems. Separating items in the SB that should be mandated from those that should not be mandated proved to be difficult, because these items are intermixed and separating them can make the sequence of tasks difficult to communicate. Some of the brainstormed concepts would have necessitated the creation of additional service documents which would add cost and create confusion for DAH, repair stations, and air carriers. Other options would have had the effect of undoing some of the AD Friendly SB improvements that have been generally met with favor by DAHs, air carriers and the FAA. Options that required special formatting such as bold or underlining were found to add confusion when the SIWG tried them out on example SBs. Some of the proposals would require updates to various computing systems which are costly to implement and can not be implemented quickly.

There was a proposal to identify the unsafe condition and notate only steps of the SB directly related to correcting the unsafe condition, including detailed work steps within figures as RC. The term “figure” in SBs is a part of the service bulletin that includes an illustration, photograph, chart, graph, table, form, note, symbol, callout, text, or dimension (or any combination) that supports or clarifies the written instructions, while an illustration is a pictorial graphic. It was decided that that proposal would have required detailed assessment of even minor steps within the SB by SB authors, ARs, and FAA engineers to determine whether each step within the figure should be RC or not. There was concern that this would result in substantial increase in manhours required to write the SB, manhours to review the SB, and the potential for many disagreements regarding which steps within the figure should be notated as RC. This could cause delay in release of SBs and the potential for further SB revisions and AD supercedures. The determination was made that the RC notation would be used only within the SB Accomplishment Instructions, so that individual figures would either be RC or not. A SIWG

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figures sub-team is working on SB figures improvements to provide flexibility where appropriate within figures. The solutions proposed to improve SB figures are included in the Summary Sheet for T2, R1, B7 (Detailed Instructions).

After discussion, and developing concepts with example SBs, the SIWG was in agreement that a simple notation in the accomplishment instructions leading into the text for those items that are “Required for Compliance (RC)” was the solution that would provide the most clarity regarding mandatory items. The SIWG also concluded that this solution would be easily implemented and not add undue manhours to the SB authoring process or the FAA review time while providing appropriate flexibility to air carriers. Additionally, the team saw the benefit of the AD Friendly SB improvements and concluded they should be continued and further communicated as a means to clarify the mandatory tasks.

The Working Group spent significant time discussing the level of detail items should be identified as a critical step within a SB. The Working Group was split on the level of detail that should be notated as a required for compliance step. Some of the Working Group members felt that items needed to be identified at a very detailed level (within a SB figure if necessary) while other Working Group members felt the required for compliance steps must be flagged at a higher (Accomplishment Instruction) level within the SB.

Advantages for each level of detail as defined by their proponents are listed below.

Tasks identified at a very detailed level:

- Air carriers and maintenance providers feel they currently review all detailed steps and identify the required for compliance steps. They feel the DAH should perform this task before the SB is published and include that information in the SB
- Identifying steps at a higher level makes all of the steps within that task critical and therefore must be done without exception
- Identifying tasks at a very detailed level will give air carriers and maintenance providers maximum relief and flexibility.

Tasks identified at a higher (Accomplishment Instruction) level:

- Air carriers/maintenance providers might accomplish only the required for compliance steps and place less emphasis on steps not identified as critical.
- All information on drawings and put in the SB must be accomplished for the type design change. Therefore, all of the information on the drawing and put in the SB would be identified as critical.
- If tasks were identified at a very detailed level, than a significant amount of time and resources would be spent between the DAH and FAA in agreeing on the items that should be identified as critical. This would delay publication of the service bulletin.

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- Incorporation of other improvements such as general notes and clarifying figures would provide flexibility to air carriers and maintenance providers on how the required for compliance steps are accomplished making the more detailed level of task identification less necessary.
- Problems may be created if required for compliance steps within a SB are not properly identified as critical during the SB preparation and approval process.
- Identification of steps at the higher level is an improvement over the current state.

After presenting the proposal to the ARC Chairpersons and subsequent discussion within the Working Group, the Working Group agreed to propose that the standard should be to define tasks at the higher (Accomplishment Instruction) level. However, it was also agreed upon that a DAH could exceed the standard and define required for compliance steps at a more detailed level if they desire.

The SIWG also spent a significant amount of time discussing the development and use of objective criteria to help determine which tasks should be labeled as RC. General guidance material and a series of questions was developed to assist in defining and evaluating the type design change as well as assist in defining objective criteria that could be consistently used when making the determination whether to label a task as “RC”. The general guidance material and the series of questions created should help to define the specific design change that was created to correct the unsafe condition and will assist in determining whether a task is a direct part of detecting, preventing, correcting or eliminating the unsafe condition that prompted the SB and the consideration of an AD. The general guidance material and the series of questions created by the SIWG to assist in determining which tasks should be labeled as RC is shown in Appendix 3.

Airbus and Bombardier do not concur with the level of detail that the Working Group has proposed for identification of required for compliance (RC) tasks. They do not plan to identify at the level of steps within the Accomplishment Instruction as described in this Summary Sheet. They will instead identify required for compliance tasks at a higher level by making the specific sections (such as Procedure and Test paragraphs) of their service bulletins RC. Airbus will also include a note in their service bulletins to explain that only the “Procedure” and “Test” paragraphs are required for compliance with an AD. Airbus’ and Bombardier’s position are more fully described in Appendix 1 and 2 to this Summary Sheet.

IMPLEMENTATION PLAN

The working group is proposing a new Advisory Circular to provide written guidance to FAA, DAH, air carrier, and maintenance provider personnel. The proposed guidance material will provide information to help creators of service information as well as users of the service information understand the safety intent of the design change, the configuration that corrects the

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unsafe condition, and which tasks are necessary to comply with the applicable AD.. It is expected that the new Advisory Circular will be published before June 30, 2011. It was also proposed that language also be added to FAA Order 8900.1. After the new Advisory Circular is published AFS-300 will review Order 8900.1 to determine if language should be added. The AD template will also be updated to include the new notes that define use of the terms “refer to”, “in accordance with”, and “Required for Compliance (RC)”. In addition, a request to update ATA Spec 2200 and S1000D has been submitted to include guidance material.

It is expected that each DAH and regulatory authority will create internal guidance material based on the information in the industry documents to ensure the standards for identifying the safety intent, describing the configuration that corrects the unsafe condition, and identifying the applicable tasks as RC are met during the authoring, review, and approval of SBs. Training of DAH SB authors, AD writers, DAH and FAA engineers and inspectors will need to be developed prior to implementation of changes to SB and ADs. After guidance has been published, and training has been conducted, DAHs can implement the proposed SB changes and the FAA can implement corresponding AD changes .

ASSUMPTIONS/CONSTRAINTS

This solution assumes that DAH are willing to incorporate ADF service bulletin improvements and definition of RC tasks in their SB authoring process.

ISSUES FOR WORKING GROUP CONSIDERATION

The AD Development Working Group is impacted by the proposed inclusion of two notes in ADs. The wording of the two notes, which are also proposed to be included in DAH SBs, needs to be coordinated with the AD Development Working Group. Any changes to the wording of the notes will need to be re-coordinated between the AD Development and Service Information Working Groups so that the note wording the SBs and the ADs remains consistent. The proposed changes have been accepted by the ANM-114 representative on the Service Information Working Group and have been coordinated with the AD Development Working Group.

The guidance material that has been developed has been coordinated with the FAA Organizational / Procedures Working Group for determination of how the information should be published in the appropriate FAA documentation. The AD Implementation Working Group is proposing documentation be created that is related to AD planning. The proposed documentation may be impacted by the ADF concepts and the Required for Compliance (RC) concept defined in this Summary Sheet. Industry personnel will need to be aware of both the ADF and the RC concepts to facilitate their review of SBs and ADs during the AD Planning stage as well as when they develop their Engineering Orders and task cards. The ADF and RC concepts described in this Summary Sheet have been provided to the AD Implementation Working Group. After acceptance of the proposal in this Summary Sheet, the Service Information Working Group will work with the AD Implementation Working Group as

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necessary to provide assistance in creating the documentation proposed by the AD Implementation Working Group.

ISSUES FOR ARC CONSIDERATION

After approval and implementation of the concept defined in this Summary Sheet, each affected stakeholder will need to provide training to their personnel. Each affected stakeholder will be responsible for developing and providing the training to affected personnel in their organization.

The implementation of this proposal will differ among the DAH's. Airbus has identified that they do not concur with the level of detail that the Working Group has proposed for identification of required for compliance (RC) tasks. They plan to identify the Procedure and Test paragraphs of their service bulletins as RC. They will not identify specific steps as recommended in this proposal. This is more fully described in the Appendix to this Summary Sheet.

TASK 1, FINDING NO. 2

In the current method of writing SBs, the accomplishment instructions of an SB do not distinguish between instructions that satisfy the safety intent of the AD and instructions that merely serve to complete the overall work package. This contributed to unnecessary questions of compliance and requests for AMOCs.

AD 2006-15-15 (a class 2 AD as defined in this report) specifies wire bundle routing and modifications that were very prescriptive subsets of SWPM practices. As a result, it is possible that in subsequent maintenance, an air carrier or repair station maintenance technician could demodify some or all of the installation and render it noncompliant with the AD through the use of the standard practices defined in the SWPM, if he or she were unaware the wiring was an AD-required installation.

The Lead Airline Process contributed to the development of both SB revisions proposed in the rulemaking process culminating with AD 2006-15-15. However, the level of specificity of SB instructions addressed in that process did not in all cases match the level of detail that arose during the audit. In addition, not all of the differences in the configurations of the applicable airplanes were addressed during the Lead Airline Process. Consequently, the SB instructions did not prevent questions of compliance or installations that were noncompliant.

Several air carriers implemented the SB before the AD was issued in some airplanes. At least one air carrier interviewed did not recognize the importance of the prescriptive criteria in the AD and did not revisit and reevaluate their earlier work for compliance with the prescriptive requirements in the AD.

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TASK 1, RECOMMENDATION No. 2, BULLET 1

The OEM and ATA, as appropriate should-

- Revise the way SBs are written to avoid mandating things that are not required to meet the safety intent of the SB. This would include ensuring air carriers have appropriate guidance and controls when authoring air carrier AD accomplishment documents.

TASK 2, FINDING No. 1

The team found that in some cases, service instructions were not sufficiently user-friendly and complete. These incomplete instructions resulted in widespread air carrier confusion because of the differences in the referenced service instructions and AD instructions. These deficiencies in service instructions have led to an increased demand for AMOC's and AD time extensions and/or exemptions. This has strained limited national aviation authority resources. The Team found that there is an opportunity for expanded use of the FTEI process within the OEM industry. Use of this will ensure air carrier's review proposed mitigating action and make user-friendly inputs to draft OEM service instructions.

TASK 2, RECOMMENDATION No. 1, BULLET 1

Critical Task Differentiation. Service instructions should explain the safety intent of the instructions. They should differentiate the critical tasks and task sequences requiring exact conformance from flexible advisory instructions for tasks that are common acceptable air carrier procedures. This differentiation will allow improved understanding of crucial AD requirements and consistent judgment in AD compliance.

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Appendix 1. Airbus' Position on the Proposal

Airbus can not fully support the recommendation included in this Summary Sheet. Airbus has agreed to identify certain paragraphs of their service bulletins as required for compliance, but they will not identify specific steps as recommended in this Summary Sheet.

Currently, the Accomplishment Instructions in Airbus service bulletins are split in 5 paragraphs:

- General
- Preparation
- Procedure
- Test
- Close-up

In future service bulletins (SB) related to airworthiness directives (AD), Airbus will state that only paragraphs “Procedure” and “Test” are considered critical to ensure removal of the unsafe condition from the airplane. Any instruction in these paragraphs will have to be performed as written. Airbus will also include a note in their service bulletins to explain that only the “Procedure” and “Test” paragraphs are required for compliance with an AD.

This means that US air carriers may deviate from “General”, “Preparation” and “Close-up” instructions without interfering with the safety intent of the related FAA AD. This, in combination with improved general notes in the SB, will provide flexibility and clarify identification of working instructions Airbus considers safety relevant.

The reasons for Airbus' position include:

- There is no regulatory requirement to identify steps within a service bulletin as critical to correct the unsafe condition.
- Their authoring system will not allow them to insert the CS identifiers in specific steps within the service bulletin accomplishment instructions. The cost to build this capability into their authoring system is prohibitive.
- Their non-US customers do not have the same desire or need to separate critical tasks from the flexible advisory instructions.

Airbus understands their position is a dissenting one. However, Airbus considers their approach to be an equivalent means to comply with the intent of the recommendation.

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Appendix 2. Bombardier's Position on the Proposal

Bombardier cannot fully support the recommendation included in this Summary Sheet; however, there are many details of the recommendation that Bombardier will incorporate and that it considers will meet the intention of the recommendation.

Bombardier has agreed to identify certain paragraphs of its service bulletins as Required for Compliance, but it will not identify specific steps as recommended in this Summary Sheet.

Currently, the Accomplishment Instructions in Bombardier service bulletins is split into three sections:

- Job Set-up
- Procedure
- Job Close-out

Bombardier service bulletins combine the Test section with the Job Close-out section. Future service bulletin Accomplishment Instructions will contain four paragraphs:

- Job Set-up
- Procedure
- Test
- Job Close-out

In future service bulletins related to airworthiness directives (AD), Bombardier will state that only the Procedure and Test sections are considered critical – Required for Compliance – to ensure removal of the unsafe condition from the airplane. Any instruction in these sections will have to be performed as written. Bombardier will also include a note in their service bulletins to explain that only the Procedure and Test sections are required for compliance with an AD pending Transport Canada Approval.

This means that US operators may deviate from Job Set-up and Job Close-out instructions without interfering with the safety intent of the related FAA AD. This, in combination with the incorporation of other improvements such as general notes, clarifying usage of figures, and adding flexibility for air carriers and maintenance providers in the usage of standard practices, will eliminate unnecessary questions of AD compliance.

Bombardier has developed and incorporated FAA AD Friendly SBs; however, there are standards that have been incorporated by other OEMs into their FAA AD Friendly initiative that are not an issue for Bombardier. In particular, the usage of “refer to” and “in accordance with” because up until this time, regional operators have not produced their own manuals, i.e. alternate acceptable air carrier procedures, and therefore, no AMOC requests of this nature exist.

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The reasons for Bombardier's position include:

- There is no regulatory requirement to identify steps within a service bulletin as critical to correct the unsafe condition.
- Non-US customers do not have the same desire or need to separate critical tasks from the flexible advisory instructions.
- As stated in the summary sheet in the section Alternatives Considered under the listing of advantages of the level of detail at a higher (Accomplishment Instruction) level: *“All information on drawings and put in the SB must be accomplished for the type design change. Therefore, all of the information on the drawing and put in the SB would be identified as critical.”* Bombardier believes that the Procedure and Test sections contain the “how to” accomplishment instructions equating to the drawing requirements.
- From the same section in the Summary Sheet: *“If tasks were identified at a very detailed level, than a significant amount of time and resources would be spent between the DAH and FAA in agreeing on the items that should be identified as critical. This would delay publication of the service bulletin.”* Bombardier believes that the same result will occur if done at the level that the summary sheet is recommending.

Bombardier understands its position is a dissenting one; however, it considers its approach to be an equivalent means to comply with the intent of the recommendation.

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Appendix 3. Guidance Material

1. Introduction

This guidance should be used to answer questions that will help in determining which steps should be identified as Required for Compliance (RC) in a Service Bulletin (SB). The analysis begins by defining the unsafe condition and the root cause of the unsafe condition in an objective and succinct manner.

- 1-1. What is the unsafe condition? (The description must be factual and succinct. While it may include information that helped determine the nature and extent of the unsafe condition, it should be phrased in a manner that enables a person to determine when the unsafe condition has been addressed).
- 1-2. What was the cause of the unsafe condition
- Design deficiency – Did the unsafe condition occur because the original design standard (i.e., FAR parts 23, 25, 27, 29, etc.) was insufficient? Did the unsafe condition occur because the original design standard was not appropriately addressed in the type design (i.e., the operating environment placed more stress on the design than anticipated)?
 - Manufacturing error - Did the unsafe condition occur due to an error during production (i.e., the design met the required standard but the article was not produced to ensure compliance with the design)? Did the unsafe condition occur due to an error that was cleared through the Maintenance Review Board (MRB) process?
 - Maintenance error - Did the unsafe condition occur due to a systemic error in a maintenance practice that could not be controlled by enforcement actions under part 43?
 - Other - Did the unsafe condition occur due to a systemic operational error that can not be controlled by pilot training, ground handling training or other measures?

2. Detailed Guidance

After ensuring the unsafe condition and the root cause are defined, use the questions below to define the steps in the service bulletin that directly eliminates the consequence of the design deficiency, manufacturing error, maintenance error or other error that caused the unsafe condition?

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For each step in the service bulletin ask: Does the step directly detect, remove, prevent, or correct the consequence of the design deficiency, manufacturing error, maintenance error or other error that caused the unsafe condition? If the answer is yes, then identify the step as RC.

- 2-1. Is an inspection necessary to detect the unsafe condition? If yes, then use the following questions to help determine which steps should be identified as RC in a SB.
- a) What is the inspection looking for?
 - b) What type of inspection is required?
 - c) Must the airline use that exact inspection procedure, or can an alternative inspection procedure be used?
 - d) Is a repeat inspection required?
 - e) Is terminating action required?
- 2-2. Is a design deficiency directly related to the unsafe condition? If yes, then use the following questions to help determine which steps should be identified as RC in a SB.
- a) What design deficiency led to the unsafe condition? (Which design requirement was not met?)
 - b) What details of the design requirement were not met (material, dimensions, methods, processes)?
 - c) What final configuration must be met?
 - d) What design change was made to the airplane or component to correct the unsafe condition? (what drawing, specification, materials, dimensions or processes changed?)
 - e) What steps are required to directly accomplish the design change on airplanes in service?
- 2-3. Is a manufacturing error directly related to the unsafe condition? If yes, then use the following questions to help determine which steps should be identified as RC in a SB.
- a) What manufacturing error led to the unsafe condition?
 - b) What manufacturing requirements were not met (design data versus production specifications, information on parts, material, dimensions, methods, processes)?
 - c) What final configuration must be met?
 - d) What change was made to the airplane or component to correct the consequence of the manufacturing error? (what change to the configuration, parts, material, dimensions, methods, and processes were accomplished to ensure the article met the design requirements?)
 - e) What steps are required to directly accomplish the change to the airplane or component to bring the article to the design requirements?

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- 2-4. Is a systemic or systematic maintenance error directly related to the unsafe condition? If yes, then use the following questions to help determine which steps should be identified as RC in a SB.
- a) What maintenance error led to the unsafe condition?
 - b) What maintenance processes were not met (i.e., what specific methods, techniques or practices caused the article to become out of it's approved condition? How was the method, technique or practice misapplied?)
 - c) What final configuration must be met?
 - d) What change was made to the airplane or component to prevent the effect of the maintenance error? .
 - e) What steps are required to directly accomplish the change on the airplane or component?
- 2-5. Are any repairs required due to the inspection or modification and do the repairs directly affect the removal, prevention, or correction of the unsafe condition?
- 2-6. Is the air carrier required to contact the Design Approval Holder (DAH) or the FAA for modification, repair, testing instructions or approvals?
- 2-7. Is functional testing or operational testing required after the modification to confirm the unsafe condition has been corrected?

3. General Guidance – Items Generally to be Identified as RC

In general, if any of the following items are included in the SB and directly impact the detection, removal, prevention, or correction of the unsafe condition, the item should be identified as RC:

- 3-1. Inspection methods, techniques or practices necessary to detect/identify the unsafe condition.
- 3-2. Specific steps required that directly remove, prevent, or correct the unsafe condition found during inspections.
- 3-3. Removal of parts that directly eliminate, prevent, or correct the unsafe condition (i.e., removal of part(s) that caused the unsafe condition).
- 3-4. Installation of parts that directly remove, prevent, or correct the unsafe condition (this includes installation of part(s) and installation of hardware necessary to support the new part).

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- 3-5. Modification steps that directly remove, prevent, or correct the unsafe condition.
- 3-6. Steps such as application of corrosion inhibiting compound, application of sealant, cleaning of surfaces for proper bonding, replacing lubricant, etc. that directly remove, prevent, or correct the unsafe condition. (The step to install the material may be RC or the specific type of material may be RC. However the SB may refer to a standard practices to apply the material)
- 3-7. Repair methods, techniques or practices that directly remove, prevent, or correct the unsafe condition.
- 3-8. Functional test procedures or test criteria to ensure the repaired or modified system is operating properly if the intent of the repair or modification to the system is to correct the unsafe condition.
- 3-9. Operational test procedures or test criteria to ensure the repaired or modified system is operating properly if the intent of the repair or modification to the system is to correct the unsafe condition
- 3-10. Steps to accomplish a repair or modification obtained when contacting the DAH for repair or modification instructions.
- 3-11. Recording data (such as pressure readings, torque readings, temperature readings, gap measurements, dimensions, etc) that is specifically required to properly complete the inspection, repair, or modification.

4. General Guidance – Items Generally Not to be Identified as RC

In general, if any of the following items are included in the SB, the item should **not** be identified as Required for Compliance (RC):

- 4-1. Airplane preparation steps (such as removing electrical power, opening and tagging circuit breakers, jacking and shoring, etc.)
- 4-2. Access steps (such as removing access panels, removing sidewall panels, removing galleys or lavatories, etc.)

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- 4-3. Access restoration steps (such as installing access panels, removing sidewall panels, removing galleys or lavatories, etc.)
- 4-4. Airplane restoration steps (such as restoring electrical power, closing circuit breakers, jacking and shoring, etc.)
- 4-5. Steps such as cleaning, painting, sealing, machining, trimming, etc., that do not directly remove, prevent, or correct the unsafe condition. (If cleaning, painting, etc. steps are directly related to correcting the unsafe condition, those steps may be indentified as RC. However, if possible, allow use of alternate methods and materials to avoid being overly prescriptive).
- 4-6. Steps to update maintenance records to show that the SB has been accomplished. (This is already required by regulation. Therefore, it should not be an RC).
- 4-7. Reporting results such as inspection findings. (There may be instances where reporting results is required to comply with the mandatory action).
- 4-8. Functional test procedures or Operational test procedures performed because of interruption to other airplane systems. (i.e., if a hydraulic system is disconnected to gain access to an area, a functional test or operational test of the hydraulic system after it is reconnected should not be RC).
- 4-9. Steps to identify on an inspected, modified, or repaired part that the service bulletin has been accomplished.